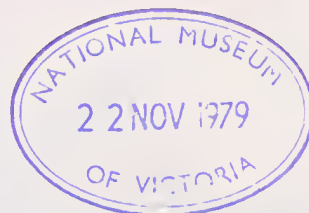


# A SURVEY OF THE VERTEBRATE FAUNA OF THE SUMAC FOREST AND THE DEMPSTER PLAINS, NORTH-WEST TASMANIA

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## ABSTRACT

Ten days were spent in an area of rainforest and wet sedgeland — heathland plains in north-western Tasmania, collecting and recording vertebrate animals and their ectoparasites.

Sixteen species of mammals, 40 birds, 3 reptiles, 3 frogs and 2 fish were recorded. Contrary to previous observations, *Antechinus minimus* was trapped in dense rainforest and ecotonal regions, where it was found to be common, apparently to the exclusion of *A. swainsonii*. Small dasyurids and murids were not found in what appeared to be suitable wet sedgeland — heathland habitat, though they were common in adjacent rainforest.

Fleas were collected from 98 mammals.

## INTRODUCTION

The Arthur River has until recently formed a barrier to vehicular penetration of an extensive area of forests and plains in north-west Tasmania.

The building of a bridge over the Arthur River about 25 km inland from the west coast, in 1971 and the construction of a network of roads by the Tasmanian Forestry Commission has recently provided easy and convenient access to this area for authorised personnel. With the help and cooperation of Forestry Commission staff, ten days, from 13th to 23rd March 1978, were spent on a survey of vertebrate fauna. The work was carried out by the author and two assistants in sections of the Sumac Forest and Dempster Plains to the east of the Julius Depot, a Forestry Commission works camp, located about 30 km east of Nelson Bay on the west coast and 35 km south of Duck Bay on the north coast (Figure 1). It is at an elevation of about 200m and has an annual precipitation of about 1700mm.

## HABITAT

The vegetation in the area occurs as a well defined mosaic of forest and treeless wet sedgeland — heathland separated by a brief ecotone (Plate 1) and is typical of much of western Tasmania. It provides habitats for several species of small mammals (Green 1967, 1968, 1972).

The Sumac Forest area has never been logged and a spectacular feature is the very large and often over-mature *Nothofagus cunninghamii* (beech) trees in the areas of rain forest. Sclerophyll forest (Plate 2) also occurs in patches, its distribution being dependent upon the effects of fire, soil and climatic influences. Jackson (1965) discussed the results of these influences and their various ecotonal effects.

The treeless areas of the Dempster Plains are very fire prone in summer and may in part be the result of burning by aborigines before the advent of European settlement. They are presently maintained by periodic burning, both accidental and deliberately ignited. The Forestry Commission maintains a programme of burning sedgeland outside the high fire danger period. This provides natural fire breaks between the areas of forest by reducing accumulations of fuel. It also reduces the risk of uncontrolled and extensive forest fires in peak fire prone periods.



Plate 1 — The ecotone between the Dempster Plains and the Sumac Forest.



Plate 2 — A newly constructed road through a section of wet sclerophyll forest near Julius Depot.



As a result, the sedgeland — heathland plains vary considerably in the degree of ground cover and shelter they provide for small mammals. Populations of several species are dependent upon rather critical levels of regeneration. Their occurrence is therefore generally patchy, occurring primarily in semi-isolated pockets, whenever the habitat has reached a suitable standard of regrowth.

The time lapse and conditions following burning required for the establishment of tolerable and optimum habitat for the various animal species concerned has yet to be accurately defined and the present report illustrates this when discussing *Antechinus minimus* and *Rattus lutreolus*.

## METHODS AND SOURCES OF DATA

Small mammals were collected by trapping with standard commercial rat traps, Sherman tin traps (23 x 9 x 8cm) and wire cage traps (45 x 20 x 20cm). These were set at sites carefully selected as being the most likely places to catch. They were placed at 10-20m intervals in twisting lines determined by the best habitat. Traps were baited with bread and peanut butter and left set for 2-3 days before being removed to alternative sites.

Snap traps were set for about 500 trap nights in wet sedgeland — heathland habitat on Dempster Plains and for about 1300 trap nights in tea-tree scrub, ecotone and rainforest. Sherman traps were set for about 240 trap nights in rainforest and cage traps were set for 30 trap nights in rainforest and forest clearings.

Snap traps proved to be far the most successful and animals were often taken, apparently by firing the trap when running over the bait. Sherman traps rarely caught (eight occasions) animals apparently being shy to enter. Cage traps failed to take animals but were disturbed on six occasions, presumably by *Trichosurus vulpecula*. Six mist nets (10 x 2m) were set at Julius Depot for bats and nocturnal birds on six nights.

Spotlighting from a vehicle along forestry roads and on foot in the vicinity of Julius Depot was undertaken on several nights to search for larger animals.

Observations were made on the occurrence of all vertebrate animals whenever time and opportunity permitted. Calls of frogs were recorded on tape.

Collected mammals and birds were chloroformed in individual plastic bags, their ectoparasites so killed and removed by shaking or brushing the host over a sheet of white paper. All parasites thus collected were then sorted and preserved in 70% alcohol. After standard data was recorded, rodents, reptiles, amphibians and fish were preserved in 4% formalin; bats, marsupials, birds and sundry invertebrates were preserved in 70% alcohol.

Nomenclature for mammals follows Ride (1970); for birds, Schodde et al. (1978); for reptiles, Rowlinson (1974); for amphibians, Littlejohn & Martin (1974).

## FAUNA LIST

The relatively short time spent in the area precludes an accurate assessment of the distribution and relative abundance of species present. The following annotated lists are therefore presented to record only the results of collections and observations made over the ten day period.

### Mammals

#### Brush Wallaby *Macropus rufogriseus*

Several were seen by day in tall tea-tree scrub bordering the Dempster Plains and by night along roads through the Sumac Forest.

#### Tasmanian Pademelon *Thylogale billardieri*

Often seen when spotlighting along roads and about the edges of clearings in the rainforest.

#### Brush-tailed Possum *Trichosurus vulpecula*

Two were seen by spotlight in rainforest on the edge of a clearing.

#### Common Ringtail *Pseudocheirus peregrinus*

Three were seen in rainforest canopy by the roadside near Julius Depot.

#### Common Wombat *Vombatus ursinus*

Not seen but scats and footprints were commonly found throughout the area.

#### Brown Bandicoot *Isodon obesulus*

One was seen when spotlighting amongst logs at Julius Depot and one was killed by a snap trap set for small mammals in heavy rainforest.

**Tiger Cat *Dasyurus maculatus***

Not seen but scats consistent with those of this species were found in several places.

**Tasmanian Devil *Sarcophilus harrisii***

Not seen but footprints in damp silt were found near Julius Depot.

**Swamp Antechinus *Antechinus minimus***

Twenty-five were collected by trapping, principally in dense rainforest and to a lesser extent in tea-tree scrub and wet sedgeland — heathland ecotone on the edges of the Dempster Plains. Three females were found to have recently finished lactating, two having six nipples enlarged and one having five of her six nipples enlarged. The remaining 10 females and 12 males were all well developed sub-adults in non-breeding condition.

The occurrence of *A. minimus* in a rainforest habitat has not been previously recorded and presents an extension of the habitat types in which it is known to occur. Ride (1970, p. 119) noted its distribution as "Coastal south-eastern South Australia, coastal southern Victoria, Tasmania, Islands of Bass Strait; tussock grassland, coastal complex", while Green (1973, p. 37) considered its preferred habitat as "dense wet sedgeland and adjacent swampy drainage systems". The latter's findings are based principally upon fieldwork in the Cradle Mountain — Waratah area of north-western Tasmania together with isolated findings in other parts of the state (Green, 1971). These earlier investigations indicated that *Antechinus swainsonii* occupied the rainforest habitat to the apparent exclusion of *A. minimus*.

An extensive area on the Dempster Plains, which had not been burnt for 16 years (N. Gellie, pers comm.) appeared, from previous experience, to be an ideal habitat for *A. minimus* and *Rattus lutreolus*. Searching in this area failed to find any evidence of runways or scats and trapping for 500 trap nights produced animals only in or near to the ecotonal region. No explanation is offered here for the apparent absence of *A. minimus* from what appeared to be suitable areas of wet sedgeland — heathland habitat and for its occurrence well inside heavy rainforest, to the apparent exclusion of *A. swainsonii*.

**White-footed Dunnart *Sminthopsis leucopus***

Four sub-adults and an adult female which had recently ceased lactating were trapped in rainforest. The adult had only six discernable nipples, all in post-lactating condition.

**Eastern Swamp-rat *Rattus lutreolus***

Fifty-five were trapped in rainforest and in the wet sedgeland — heathland ecotone. Contrary to expectations, it did not appear to be present in extensive areas of Dempster Plains which had remained unburnt for the previous 16 years and which appeared to be a highly acceptable habitat. No runways or scats were found in the area and trapping for 500 trap nights failed to yield rats in other than the ecotonal region.

About 50% of animals were sub-adult ((44-60 gm body weight). No pregnant or lactating rats were collected but in most adult females, the nipples were still enlarged and obvious. Most adult males were in a post-breeding decline with teste regression well advanced.

**Ship Rat *Rattus rattus***

A pair with black pelage was trapped amongst logs about 100m from the buildings at Julius Depot. Though not lactating, nipple condition and teste development indicated recent breeding.

**Long-tailed Rat *Pseudomys higginsii***

Thirty-five were trapped in the rainforest, about 60% of which were sub-adults (29-60 gm body weight). No pregnant or lactating rats were collected but the nipples were still enlarged and obvious on about 50% of adult females. The testes of adult males were well regressed.

**House Mouse *Mus musculus***

One male and one female were trapped in dense rainforest. Though not pregnant or lactating, nipples were well developed and obvious. Testes were well developed.

**Lesser Long-eared Bat *Nyctophilus geoffroyi***

Bats were seen flying about the clearings at Julius Depot on most evenings. Four males and two females were mist netted, none of which showed signs of having bred.

**Platypus *Ornithorhynchus anatinus***

One was seen swimming on the surface of Lake Chisholm.

**Birds**

Hoary-headed Grebe *Poliocephalus poliocephalus*

One was seen on Lake Chisholm.

Great Cormorant *Phalacrocorax carbo*

Two were seen on Lake Chisholm.

White-faced Heron *Ardea novaehollandiae*

One was seen on the edge of Lake Chisholm.

Brown Goshawk *Accipiter fasciatus*

Individuals were seen on several occasions.

Wedge-tailed Eagle *Aquila audax*

Two were seen in the vicinity of Dempster Plains on several occasions.

Brown Falcon *Falco berigora*

Occasional birds were seen and heard.

Latham's Snipe *Gallinago hardwickii*

Not seen but footprints consistent with those of this species were found in drying ponds on Dempster Plains.

Yellow-tailed Black Cockatoo *Calyptorhynchus funereus*

Small numbers were regularly seen and heard.

Sulphur-crested Cockatoo *Cacatus galerita*

Small numbers were regularly seen and heard but they were not as common as *C. funereus*.

Ground Parrot *Pezoporus wallicus*

One was flushed on two occasions from heathland on Dempster Plains. It was favouring the less densely vegetated areas.

Swift Parrot *Lathamus discolor*

Seven were seen flying north at 0730 hours on 10th March.

Green Rosella *Platycercus caledonicus*

Pairs and small groups were regularly seen and heard in the forest.

Southern Boobook *Ninox novaeselandiae*

Regularly heard at night in the vicinity of Julius Depot. Two were caught in mist nets set overnight.

White-throated Needletail *Hirundapus caudacutus*

Seen on most days, sometimes in dozens and often flying at considerable height, apparently feeding and without obvious migratory movement.

Tree Martin *Cecropis nigricans*

One was seen over Dempster Plains on 10th March.

Black-faced Cuckoo-shrike *Coracina novaehollandiae*

Small parties were occasionally seen and heard flying above the forest canopy, apparently on migration.

Pink Robin *Petroica rodinogaster*

Regularly seen and heard in the rainforest, usually in pairs.

Flame Robin *Petroica phoenicea*

Small parties were seen on several occasions at Julius Depot and other man-made clearings in the forest.

Dusky Robin *Melanodryas vittata*

A small party was seen at Julius Depot on several days.

Olive Whistler *Pachycephala olivacea*

Regularly seen and heard in the rainforest.

Grey Shrike-thrush *Colluricincla harmonica*

Regularly seen and heard in the forest and tea-tree scrub.



Grey Fantail *Rhipidura fuliginosa*

Commonly seen and heard in the forest and tea-tree scrub.

Superb Fairy Wren *Malurus cyaneus*

Often seen in small parties about the edges of forest clearings and occasionally deep inside the rainforest.

Southern Emu-wren *Stipiturus malachurus*

Not seen but clearly heard calling in sedgeland — heathland habitat on Dempster Plains.

White-browed Scrubwren *Sericornis frontalis*

One of the most commonly encountered birds, being seen in pairs and small parties throughout the rainforest and tea-tree scrub.

Scrubtit *Sericornis magnus*

Commonly seen in the rainforest.

Calamanthus *Sericornis fuliginosus*

These birds were occasionally seen on Dempster Plains.

Tasmanian Thornbill *Acanthiza ewingii*

One of the most commonly encountered birds, being seen in rainforest, tea-tree scrub and on the edges of forest clearings.

Yellow-throated Honeyeater *Lichenostomus flavicollis*

Regularly seen and heard calling in the forest.

Strong-billed Honeyeater *Melithreptus validirostris*

Small parties were occasionally seen and heard in the rainforest canopy.

Crescent Honeyeater *Phylidonyris pyrrhoptera*

Commonly seen and heard in the rainforest.

Eastern Spinebill *Acanthorhynchus tenuirostris*

Occasionally seen about the edges of rainforest.

Spotted Pardalote *Pardalotus punctatus*

Occasionally heard calling in the rainforest canopy.

Striated Pardalote *Pardalotus striatus*

Occasionally heard calling in the forest canopy.

Silvereye *Zosterops lateralis*

Often seen and heard in rainforest, usually in small parties.

European Goldfinch *Carduelis carduelis*

Small parties were seen and heard in rainforest on several occasions.

Beautiful Firetail *Emblema bella*

Small family parties comprising an adult pair and juveniles were seen on several occasions about the edges of clearings in rainforest. Juveniles were being fed by adults.

Grey Butcherbird *Cracticus torquatus*

Heard calling on several occasions from forested areas near Dempster Plains and at Julius Depot.

Black Currawong *Strepera fuliginosa*

Commonly seen and heard throughout the area.

Forest Raven *Corvus tasmanicus*

Pairs and individuals were occasionally seen. Near Dempster Plains a congregation of about ten were attracted by Wedge-tailed Eagles.

### Reptiles

#### Tiger Snake *Notechis ater*

One was found dead on the roadside near Dempster Plains.

#### White-lipped Snake *Drysdalia coronoides*

One was collected in dense rainforest near Julius Depot. Upon dissection, it was found to have eaten the tails of several skinks.

#### Metallic Skink *Leiopisma metallica*

Commonly seen in forest clearings and occasionally in rainforest.

### Amphibians

#### Smooth Froglet *Crinia laevis*

Commonly found beneath litter in drains and damp depressions throughout the area. It was calling vigorously and spawning was at a peak. Twenty-four specimens were collected and found to be of two fairly distinct colour forms. Calls were tape recorded and submitted to Dr. Murray Littlejohn, University of Melbourne, for sonographic analysis. Ambient wet bulb air temperature was not recorded and only a generalisation as to the specific status of the callers could be made. This was that the pulse rate was not significantly different from those of *C. laevis* (Littlejohn, pers. comm.).

#### Tasmanian Froglet *Crinia tasmaniensis*

One was heard calling at night from a small creek near Julius Depot.

#### Brown Tree-frog *Litoria ewingi*

Regularly heard calling from ponds in forest clearings. Three were collected.

### Fish

#### Native Trout *Galaxias brevipinnis*

Common in rivers and streams throughout the area. Fourteen were collected from the Julius River near the Julius Depot.

#### Brown Trout *Salmo trutta*

Common in rivers and streams throughout the area.

### Sundry Invertebrates

Ninety-eight sets of fleas were collected from mammalian hosts and 57 sets of other ectoparasites were collected from various hosts. Four freshwater crayfish *Astacopsis gouldi* were collected from Stephens Rivulet near the Arthur River bridge and sundry insects, spiders and molluscs were collected as opportunity permitted.

### COMMENTS

The road systems presently developed south of the Arthur River now provide an easy access for authorised personnel and an excellent opportunity for research in an impressive area of climax rainforest and associated plains. General zoological survey work in such habitats is desirable and this previously isolated and inaccessible area now provides the opportunity to study the ecology of the rainforests and plains of north-west Tasmania in an area which has not yet been subjected to disturbance by logging operations of any kind.

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